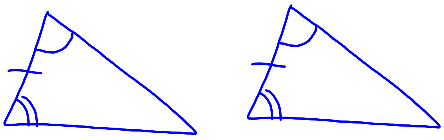
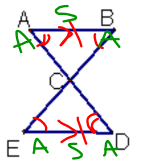
# 4-5 ASA, AAS, and HL

Postulate 4.3 ASA-If 2 angles and the included side of one $\Delta$ are $\cong$ to 2 angles and the included side of another triangle, then the triangles are $\cong$.

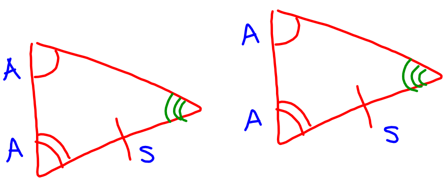


Given: $\overline{AB} \parallel \overline{ED}$; $\overline{AB} \cong \overline{ED}$
Prove: $\Delta ABC \cong \Delta DEC$

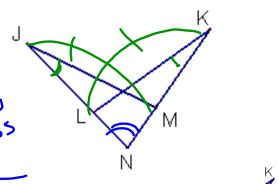



| S | R |
| --- | --- |
| ① $\overline{AB} \parallel \overline{ED}$; $\overline{AB} \cong \overline{ED}$ | ① Given |
| ② $\angle B \cong \angle E$, $\angle A \cong \angle D$ | ② If $\parallel$, alt int $\angle$s $\cong$ |
| ③ $\Delta ABC \cong \Delta DEC$ | ③ ASA |

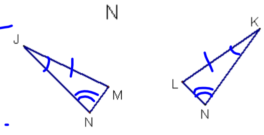
Theorem 4.5 AAS-If 2 angles and a non-included side of one $\Delta$ are $\cong$ to 2 angles and a non-included side of another $\Delta$, then the $\Delta$s are $\cong$.




Given: $\angle K \cong \angle J$; $\overline{KL} \cong \overline{JM}$
Prove: $\overline{LN} \cong \overline{MN}$



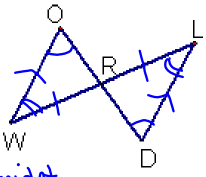

Redraw the 2 $\Delta$s



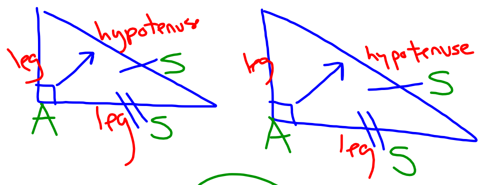

| S | R |
| --- | --- |
| ① $\angle K \cong \angle J$ $\overline{KL} \cong \overline{JM}$ | ① Given |
| ② $\angle N \cong \angle N$ | ② Refl. |
| ③ $\Delta KLN \cong \Delta JMN$ | ③ AAS |
| ④ $\overline{LN} \cong \overline{MN}$ | ④ CPCTC |

Given: $\overline{WO} \parallel \overline{LD}$; R is the midpoint of $\overline{WL}$
Prove: $\overline{OR} \cong \overline{DR}$

| S. | R. |
| --- | --- |
| 1. $\overline{WO} \parallel \overline{LD}$, R is midpt $\overline{WL}$ | 1. Given |
| 2. $\overline{WR} \cong \overline{RL}$ | 2. def of midpt |
| 3. $\angle W \cong \angle L$, $\angle O \cong \angle D$ | 3. If $\parallel$, alt int $\angle$s $\cong$ |
| 4. $\triangle WOR \cong \triangle LDR$ | 4. AAS |
| 5. $\overline{OR} \cong \overline{DR}$ | 5. CPCTC |




HL (Hypotenuse-Leg)-If the hypotenuse and a leg of one right $\Delta$ are $\cong$ to the hypotenuse and one leg of another right $\Delta$, then the $\Delta$s are $\cong$. (p.215)




HL

HW
p. 210-211 #s 4, 5, 7, 9, 11
(supp. Of $\cong$ $\angle$s are $\cong$)